U.S. – Algerian Ministerial LNG Summit

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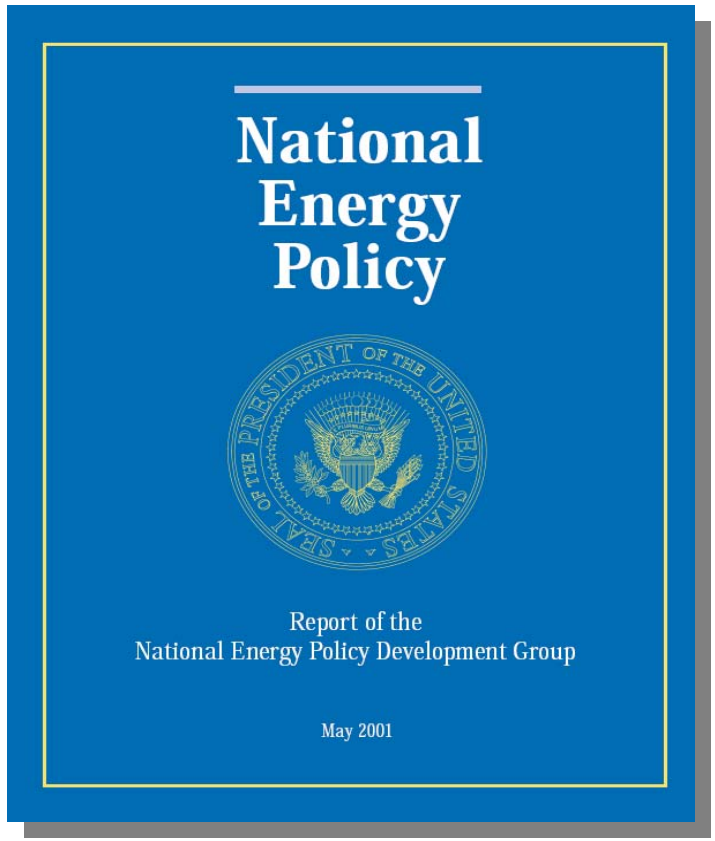
National Energy Policy

- Aggressively reduce demand through energy efficiency
- Increase energy supply
- Enhance diversity of energy sources
- Dramatically upgrade national energy infrastructure
- Build on record of environmental protection
- Create a new vision for our energy future



Increase Reliability & Efficiency of Electricity Generation, Delivery & Use

DOE leads the national effort to:

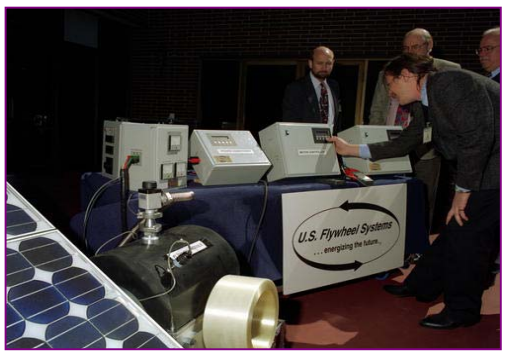
- Develop clean, efficient, reliable, and affordable distributed energy technologies
- Integrate these technologies at end-user sites
- Eliminate barriers to DER interconnection with the electricity grid
- Improve operation of the nation's transmission network

Distributed Energy Resources

Technology Development:
Microturbines, Reciprocating Engines, Fuel Cells, Storage

Technology Packages:
Integrated CHP Systems, Chillers, Desiccants

End-Use Integration:
Demand Management, Controls, Sensors



Electric & Gas Integration:
Load Management, Power Electronics

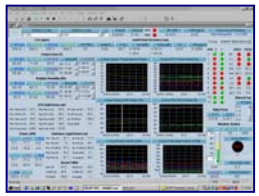
Distribution System:
Power Parks, Microgrids, DC Grids, UPS

Transmission System:
High-Temperature Superconductivity

Integration of Distributed and CHP Systems in Buildings

Control Room

(Data Acquisition/ Monitoring)



Electric Chillers

Liquid Desiccant Dehumidifier

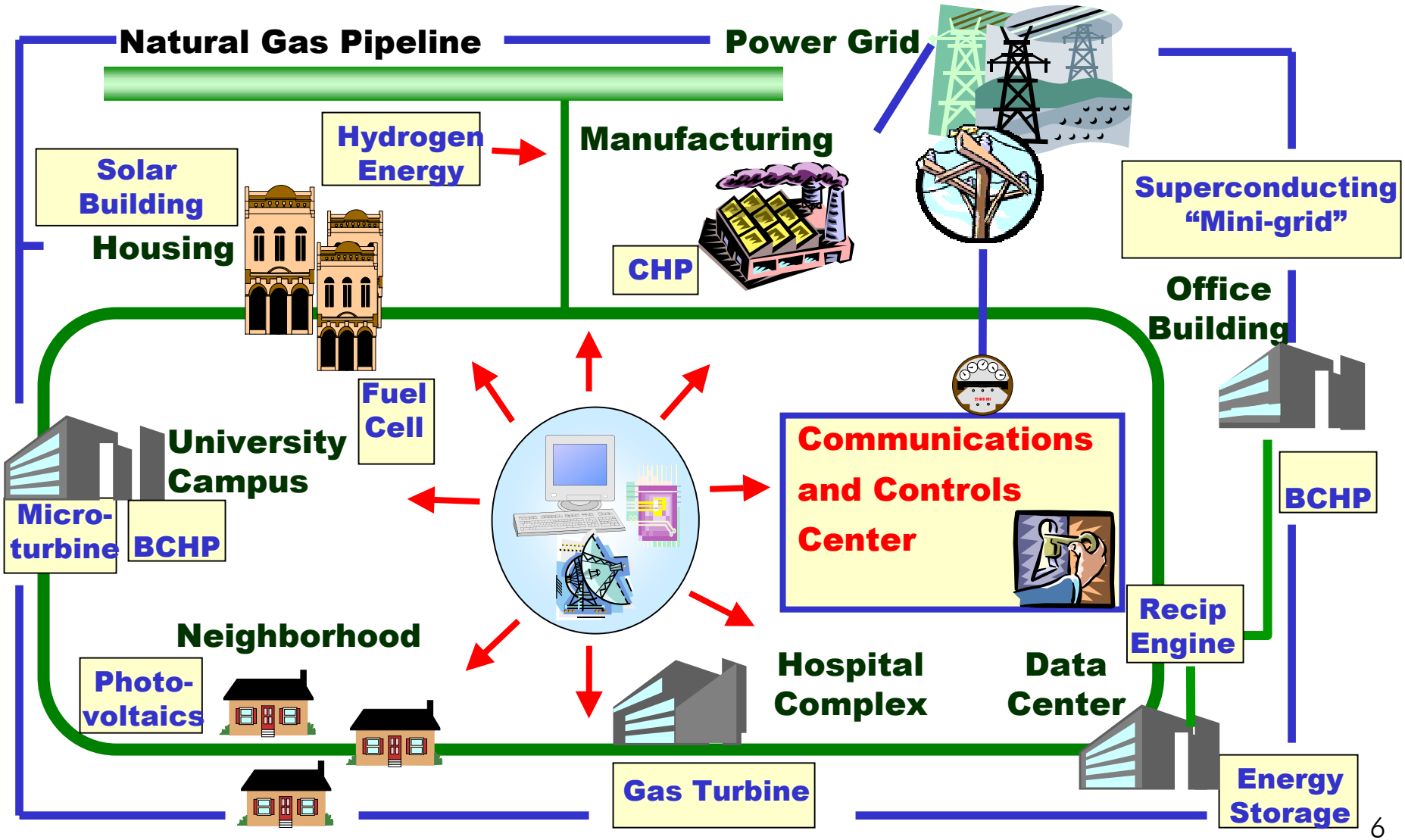
Absorption Chiller

Microturbine

Natural Gas Engine-Driven Chiller

Solid Desiccant System (ATS Air Handler)

Towards an Integrated System



Hydrogen as an Energy Carrier Offers Feedstock Diversity Leading to Improved Energy Security

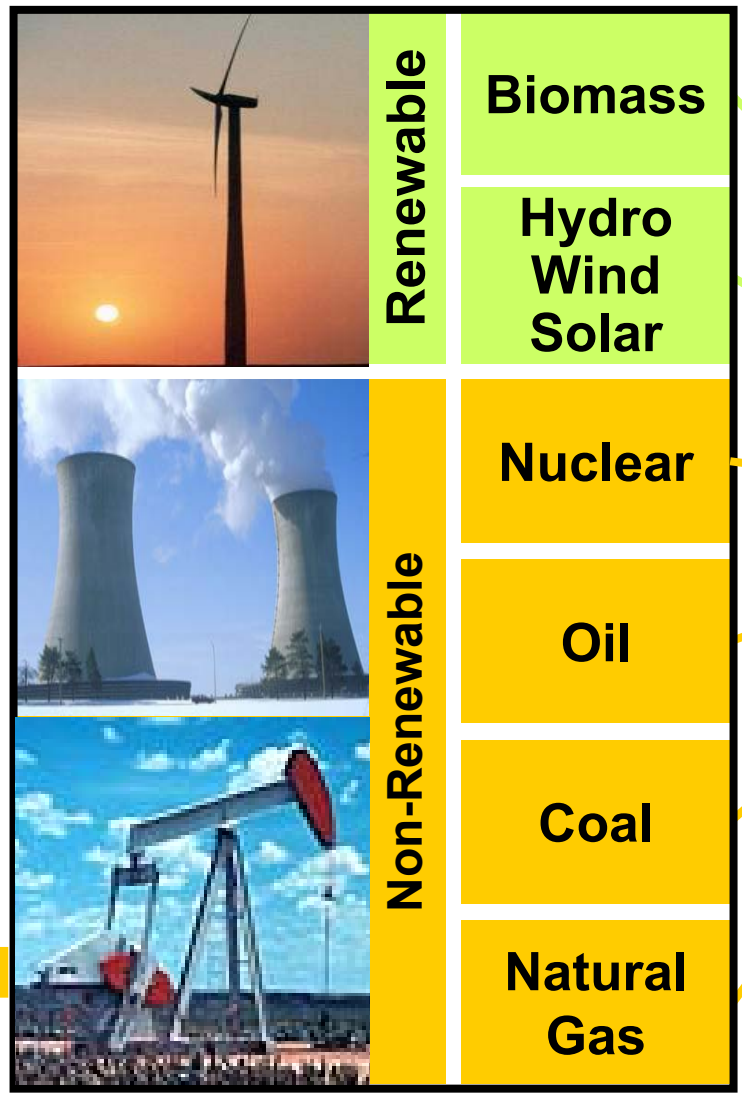
ZERO

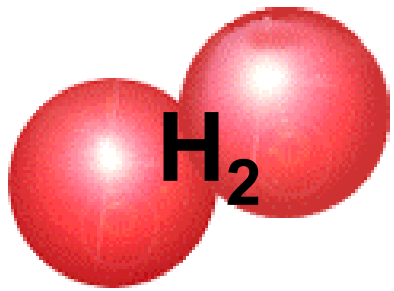
GREENHOUSE

GAS

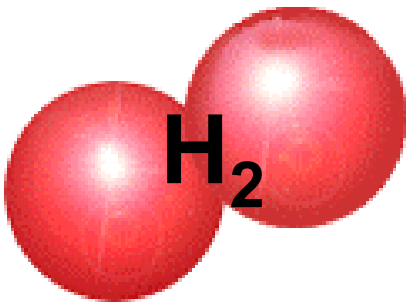
EMISSIONS

Sequestration





Hydrogen Powered Fuel Cells Offer Benefits for Transportation and Distributed Generation Applications



Transportation

HIGH EFFICIENCY

ZERO TAILPIPE EMISSIONS

Distributed Generation

HIGH EFFICIENCY & RELIABILITY

ZERO/NEAR ZERO EMISSIONS

FreedomCAR

FreedomCAR

- Enable mass production of affordable hydrogen-powered fuel cell vehicles across a wide range of models.
- Develop the hydrogen infrastructure to support them.
- Support other technologies with the potential to dramatically reduce oil consumption and environmental impacts.

Fuel Cells for Buildings

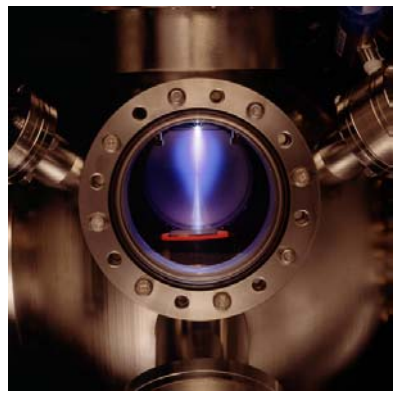
- 50 kW to 500 kW systems
- Target operating Temperature: 120ºC
- Target fuel to electricity conversion:
  - 35% efficiency for stand-alone operations
  - 75-80% efficiency for BCHP integration
- Natural Gas, Oil, Propane, Biogas, Other High Hydrogen Content Fuels
- Maximize use of recoverable energy to supply electric & thermal building load

Residential Fuel Cell Application

Office of Energy Efficiency and Renewable Energy

http://www.eren.doe.gov



Bringing you a prosperous future where energy is clean, abundant, reliable, and affordable